

Status Of Application

Claims 1 and 3-13 are pending in the application; the status of the claims is as follows:

Claims 1, 3 and 7-11 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,601,352 to Okamura (hereinafter “Okamura”).

Claims 4-6 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Okamura in view of U.S. Patent No. 6,185,045 B1 to Hanano (hereinafter “Hanano”).

Claim 13 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Okamura in view of the Hanano patent, and further in view of U.S. Patent No. 6,150,998 to Travers et al (hereinafter “Travers”) and U.S. Patent No. 5,537,092 to Suzuki et al (hereinafter “Suzuki ”).

Drawings

To date, no Notice of Draftsperson’s Patent Drawing Review has been received. Applicants respectfully request receipt of this document when it becomes available.

35 U.S.C. § 102(b) Rejection

The rejection of claims 1, 3 and 7-11 under 35 U.S.C. § 102(b) as being anticipated by Okamura, is respectfully traversed based on the following.

Okamura shows a display device that produces an image on diffusion plate 6 using light source 1, collimator lens 2 and LCDs 3, 4, and 5. The image thus created is visible to the users eye 8 by reflection off of half mirror 15, enlargement by ocular lens 7 and transmission through half mirror 15 at less than the critical angle. The diffusion plate 6 serves as the focal point for the viewer and thus functions as a transmissive screen (Figure 1, column 4, line 65 – column 5, line 8).

In contrast to the cited prior art, Claim 1 includes:

a projection optical system that projects an image displayed by said image display element;

a screen onto which the image is projected by said projection optical system; and

a combiner disposed between said projection optical system and said screen,

wherein said combiner transmits image light from said projection optical system and directs it to said screen, and reflects the image light reflected at the screen while simultaneously transmitting external light.

Thus, claim 1 requires a screen onto which the image is projected by the projection optical system and that the combiner is optically positioned between the projection optical system and the screen. The Office Action incorrectly asserts that the ocular lens 7 of Fig. 4 of Okamura is equivalent to the screen. However, a lens is not a screen, nor are the two equivalent. A lens merely transmits (reflects) light that hits it. No image is formed on it. A screen is adapted to form an image thereon. The ocular lens 7 of Okamura merely reflects and enlarges light transmitted thereto. Thus, the ocular lens of Okamura is not equivalent to the screen of claim 1 of the present application as was alleged in the Office Action.

Likewise, on page 2, the Office Action incorrectly asserts that the diffusion plate 6 of Okamura is “a projection optical system that projects an image displayed by said image display element”. Specifically, according to Okamura, an image is formed on the diffusion plate 6, which thus serves as a screen, permitting the observer to observe the image formed on the diffusion plate 6. Thus, the diffusion plate 6 of Okamura is not for projecting an image and is not equivalent to the projection optical system claimed in claim 1 as was alleged in the Office Action.

To provide anticipation, the reference must show, expressly or inherently, every limitation of the claim. MPEP §2131. Okamura does not show or suggest a combiner optically positioned between projection optics and a screen. In Okamura, the image from the LCDs is projected directly onto diffusion plate 6. Therefore, claim 1 is not anticipated

by Okamura. As claim 1 is not anticipated by Okamura, claims 3 and 7-10 which depend either directly or indirectly therefrom are also not anticipated by Okamura.

Also in contrast to the cited prior art, Claim 11 includes:

an image display element;
a projection optical system that projects an image displayed by said image display element;
a screen onto which the image is projected by said projection optical system; and
a combiner that reflects image light reflected at said screen, and simultaneously transmits external light.

Thus, claim 11 requires that the combiner reflect the image reflected from the screen while passing external light. However, in Okamura, the image from diffuser 6 passes through half mirror 15. Thus, Okamura does not show or suggest every element of claim 11, and claim 11 is not anticipated by the cited prior art.

Accordingly, it is respectfully requested that the rejection of claims 1, 3 and 7-11 under 35 U.S.C. § 102(b) as allegedly being anticipated by Okamura, be reconsidered and withdrawn.

35 U.S.C. § 103(a) Rejections

Claims 4-6

The rejection of claims 4-6 under 35 U.S.C. § 103(a), as being unpatentable over Okamura in view of Hanano, is respectfully traversed based on the following.

To provide a *prima facie* case for obviousness, the combined references must show or suggest every limitation of the claim. MPEP §2143.03. Claims 4-6 depend either directly or indirectly from claim 1 and thus include every limitation of claim 1. As discussed above, claim 1 requires a combiner positioned between the screen and the projection optics. As noted above, Okamura does not show or suggest this limitation. Hanano shows an apparatus with a similar configuration to that of Okamura. Therefore,

the combined references do not show or suggest every limitation of claims 4-6. Thus, claims 4-6 are not obvious and are patentably distinct from the cited references.

Accordingly, it is respectfully requested that the rejection of claims 4-6 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Okamura in view of Hanano, be reconsidered and withdrawn.

Claim 13

The rejection of claim 13 under 35 U.S.C. § 103(a), as allegedly being unpatentable over Okamura in view of Hanano, and further in view of Travers and Suzuki, is respectfully traversed based on the following.

Claim 13 requires:

a hood, said hood adapted to be positioned on the head of the wearer;

a visor having a first end and a second end, said first end of said visor rotatably mounted to said hood such that said visor rotates from a first position, substantially covering the face of the wearer, to a second position not substantially covering the face of the wearer;

an image display apparatus comprising:

an image display element;

a projection optical system that projects an image displayed by said image display element;

a screen onto which the image is projected by said projection optical system;

a combiner that reflects image light reflected at said screen, and transmits external light;

an eyepiece optical system disposed between said combiner and the wearer,

wherein said eyepiece optical system enlarges the image projected onto said screen; and

an optical element disposed on an external side of said combiner with respect to said eyepiece optical system,

wherein a composite optical power of said eyepiece optical system and said optical element is substantially zero, and

wherein said image display apparatus is positioned substantially at said second end of said visor.

Thus, claim 13 requires that the combiner reflect the image reflected from the screen while passing external light. However, in Okamura, the image from diffuser 6 passes through half mirror 15. As discussed above, neither Okamura nor Hanano disclose or suggest a combiner and screen in the necessary configuration. Thus, claim 13 is not obvious with respect to either Okamura or Hanano either singly or in combination.

Further, neither Okamura nor Hanano disclose or suggest “an eyepiece optical system disposed between said combiner and the wearer, wherein said eyepiece optical system enlarges the image projected onto said screen; and an optical element disposed on an external side of said combiner with respect to said eyepiece optical system, wherein a composite optical power of said eyepiece optical system and said optical element is substantially zero, and wherein said image display apparatus is positioned substantially at said second end of said visor”. Thus, claim 13 is also not obvious with respect to Okamura or Hanano either singly or in combination.

Suzuki does not disclose or suggest “an eyepiece optical system disposed between said combiner and the wearer, wherein said eyepiece optical system enlarges the image projected onto said screen; and an optical element disposed on an external side of said combiner with respect to said eyepiece optical system, wherein a composite optical power of said eyepiece optical system and said optical element is substantially zero, and wherein said image display apparatus is positioned substantially at said second end of said visor”. Thus, claim 13 is not obvious with respect to Suzuki.

Travers discloses a headset which provides a visual display while shielding a wearer’s eyes from ambient light. (*See Col. 4, lines 27-51*). Travers does not disclose or suggest “an image display element; a projection optical system that projects an image displayed by said image display element; a screen onto which the image is projected by said projection optical system; a combiner that reflects image light reflected at said screen, and transmits external light; an eyepiece optical system disposed between said combiner and the wearer, wherein said eyepiece optical system enlarges the image projected onto said screen; and an optical element disposed on an external side of said combiner with

respect to said eyepiece optical system, wherein a composite optical power of said eyepiece optical system and said optical element is substantially zero, and wherein said image display apparatus is positioned substantially at said second end of said visor". Thus, claim 13 is not obvious with respect to Travers.

As none of the cited references discloses or suggests "an eyepiece optical system disposed between said combiner and the wearer, wherein said eyepiece optical system enlarges the image projected onto said screen; and an optical element disposed on an external side of said combiner with respect to said eyepiece optical system, wherein a composite optical power of said eyepiece optical system and said optical element is substantially zero, and wherein said image display apparatus is positioned substantially at said second end of said visor" as is required by claim 13, claim 13 is not obvious with respect to any of the cited references either singly or in any combination.

Accordingly, it is respectfully requested that the rejection of claim 13 under 35 U.S.C. § 103(a) as being unpatentable over Okamura in view of Hanano, and further in view of Travers and Suzuki, be reconsidered and withdrawn.

CONCLUSION

Wherefore, in view of the foregoing remarks, this application is considered to be in condition for allowance, and an early reconsideration and a Notice of Allowance are earnestly solicited.

Any fee required by this document other than the issue fee, and not submitted herewith should be charged to Sidley Austin Brown & Wood LLP's Deposit Account No. 18-1260. Any refund should be credited to the same account.

If an extension of time is required to enable this document to be timely filed and there is no separate Petition for Extension of Time filed herewith, this document is to be construed as also constituting a Petition for Extension of Time Under 37 C.F.R. § 1.136(a) for a period of time sufficient to enable this document to be timely filed.

Any other fee required for such Petition for Extension of Time and any other fee required by this document pursuant to 37 C.F.R. §§ 1.16 and 1.17, other than the issue fee, and not submitted herewith should be charged to Sidley Austin Brown & Wood LLP's Deposit Account No. 18-1260. Any refund should be credited to the same account.

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